

Kennissymposium 13 maart 2020

Voedselvisie:

Food for Thought



#foodforthought #voedselvisie



JOSEPH POORE

OXFORD UNIVERSITEIT

VOEDSELVOETAFDRIJK:
IMPACT VAN VOEDSEL OP DE PLANEET
(INCL. Q&A)



#foodforthought #voedselvisie



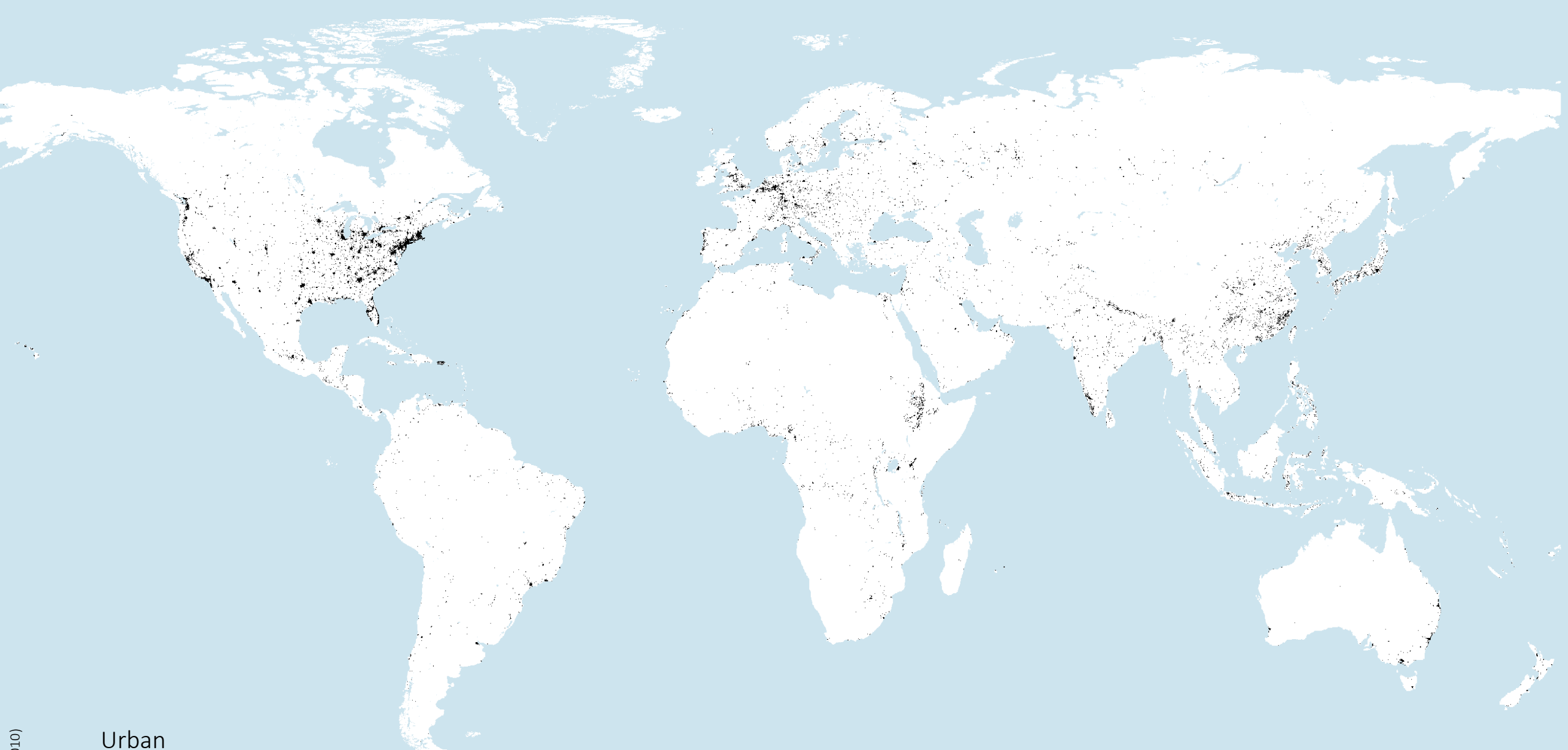
Food's Environmental Impacts and an Integrated Solution

Presentation to Party for the Animals Conference, 13th March 2020

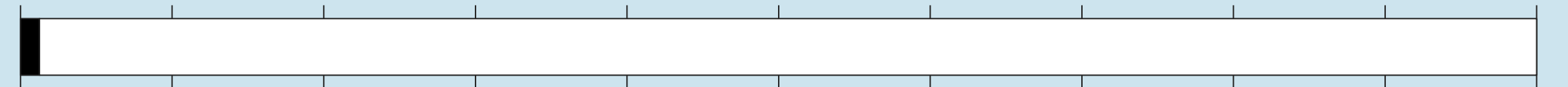
Joseph Poore



UNIVERSITY OF
OXFORD

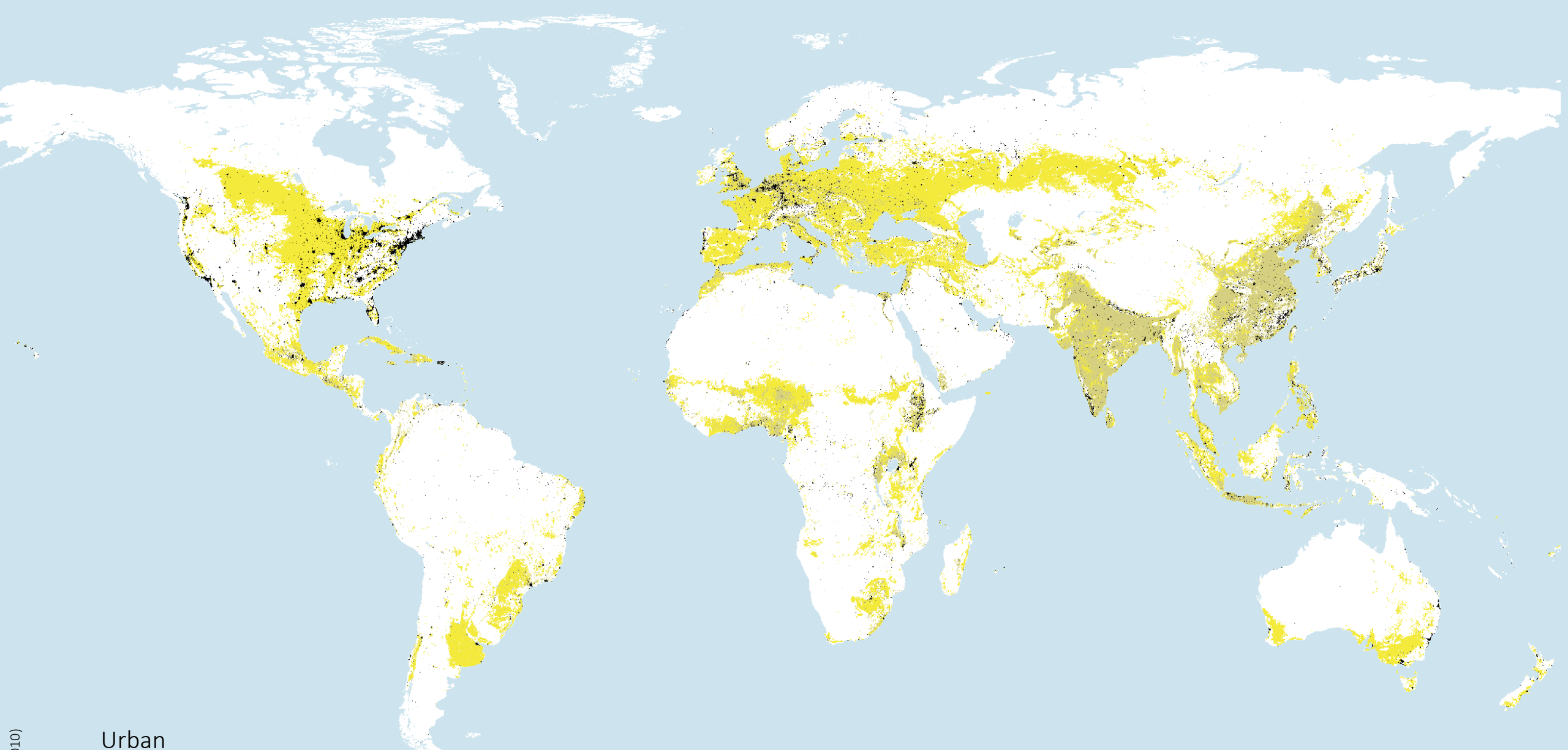


Urban

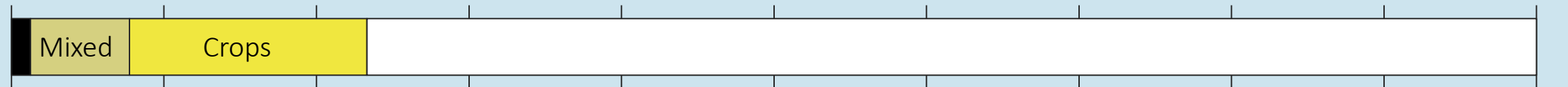


0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

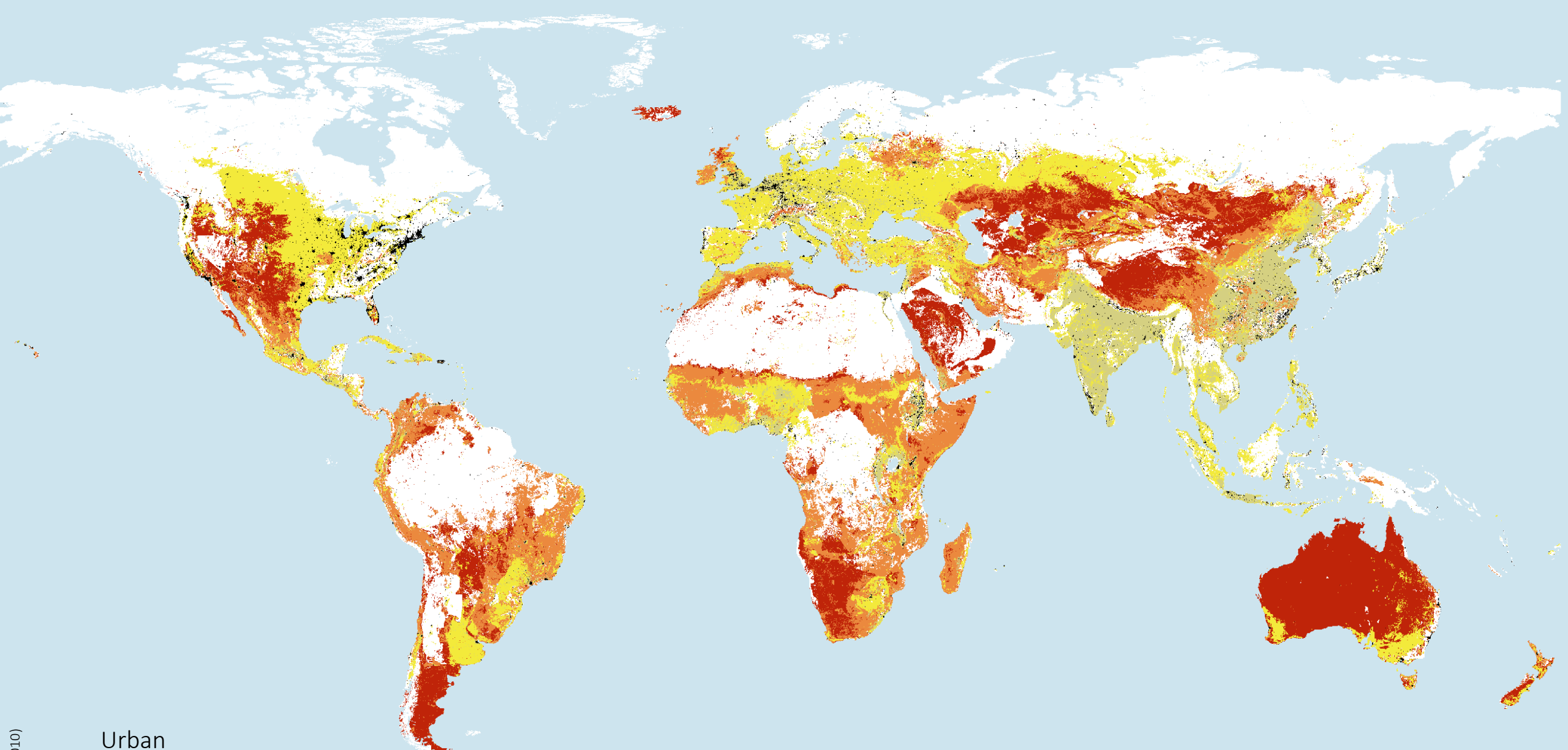
Source: Ellis et al. (2010)



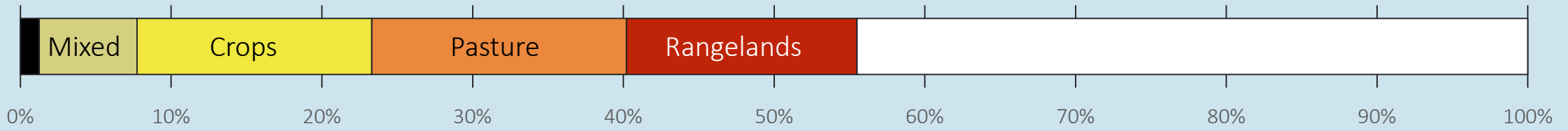
Urban



0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

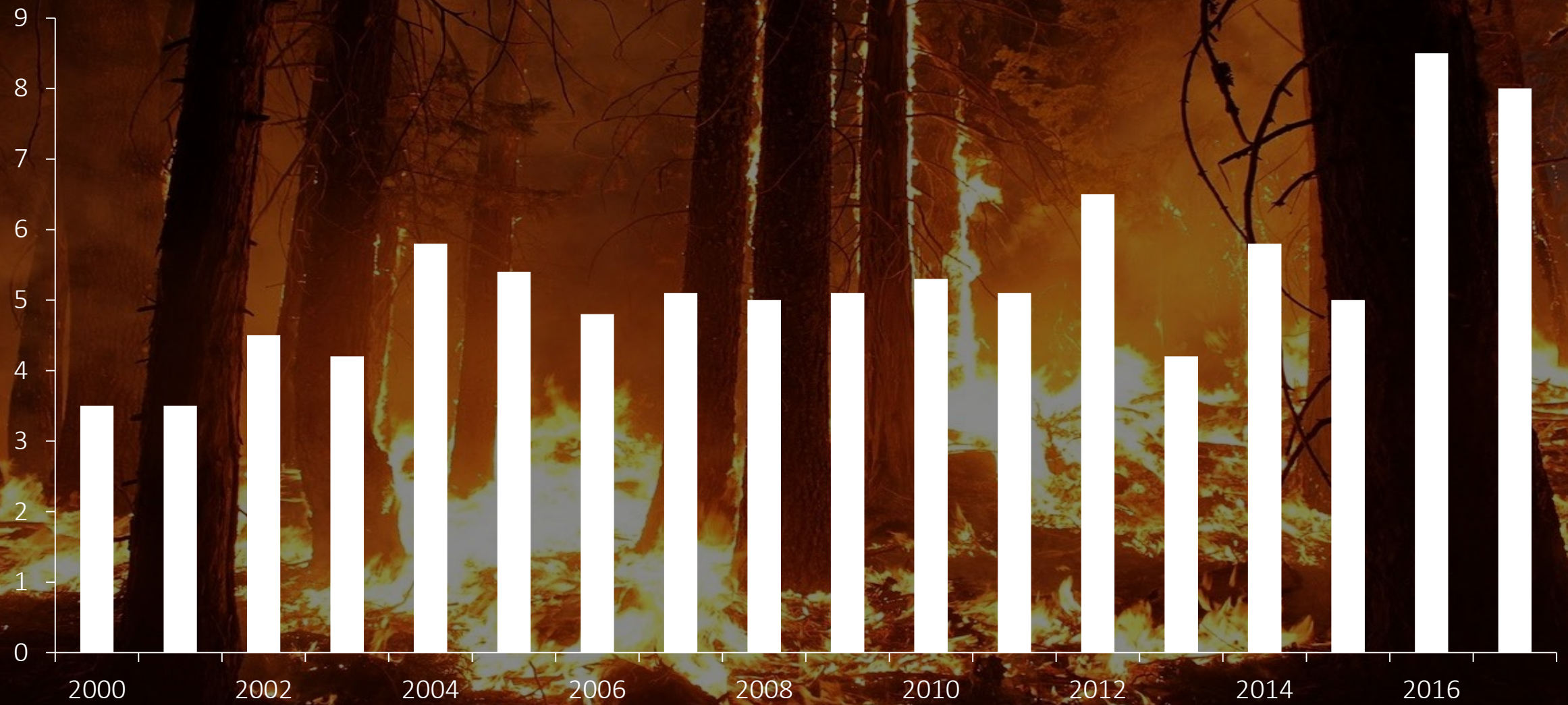


Urban

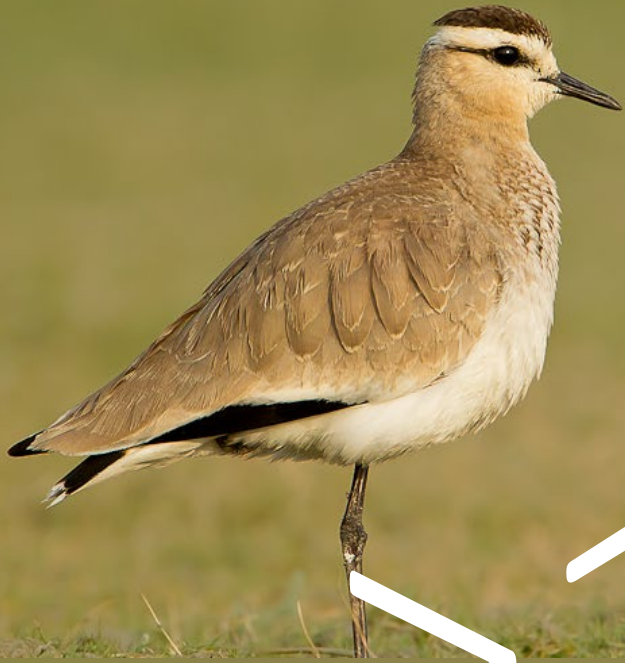


Source: Ellis et al. (2010)

Commodity Crop Driven Deforestation (million hectares)



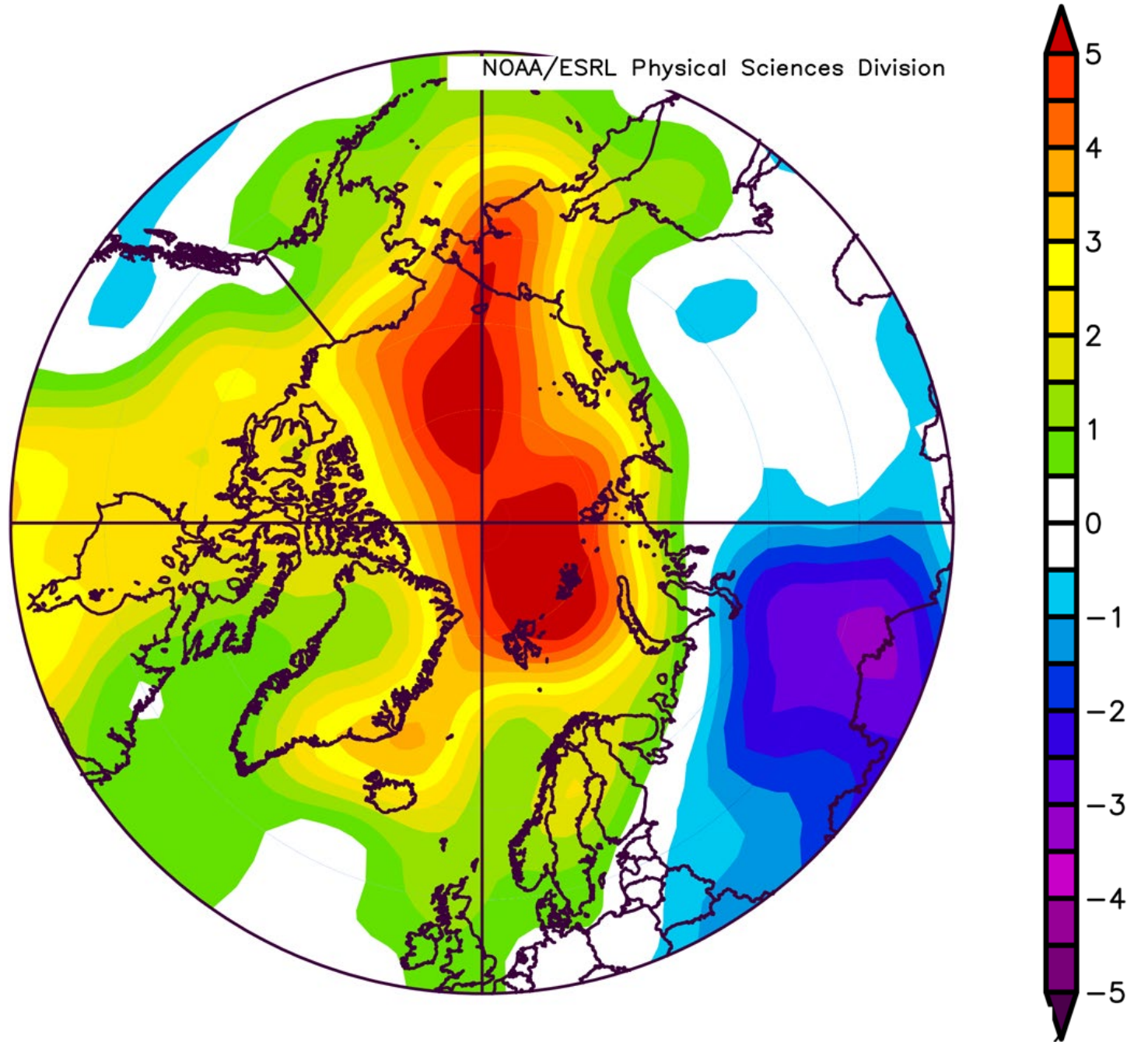




> 13,000



Greenhouse Gas Emissions

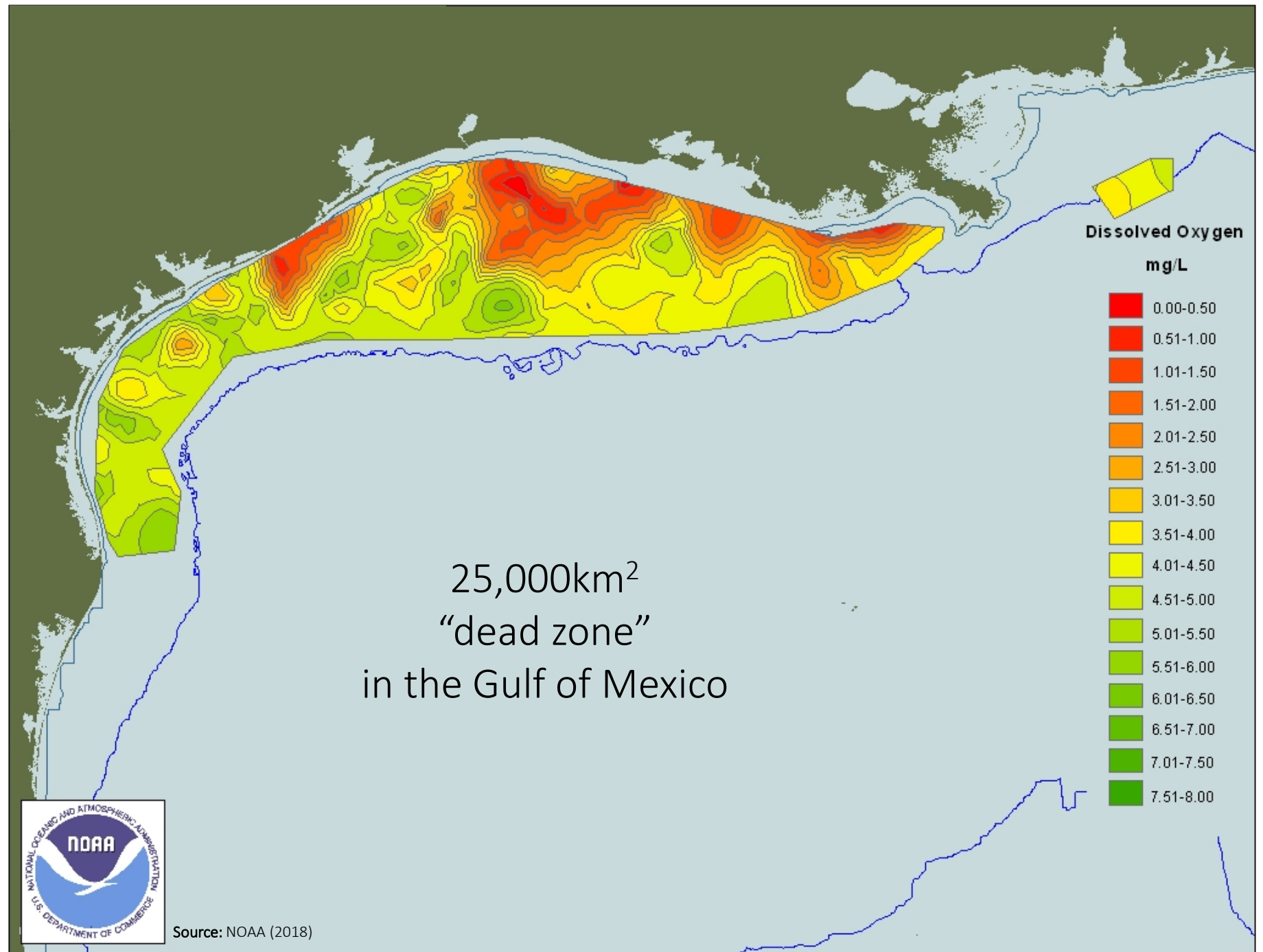
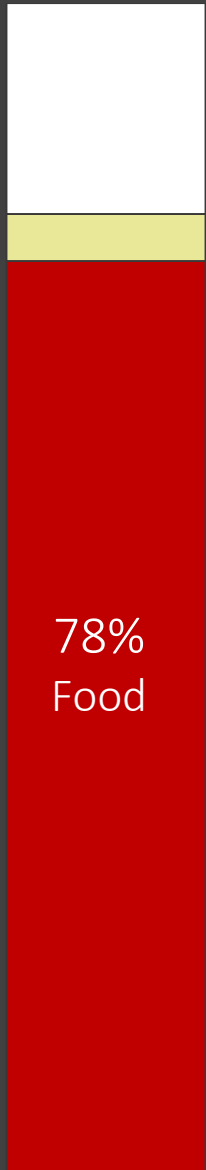


Acid Rain

32%
Food

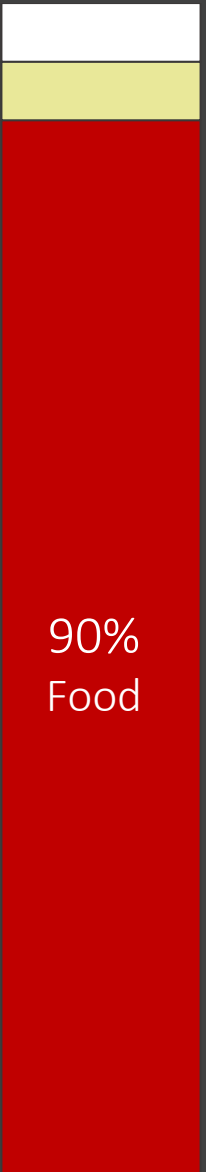


Eutrophication



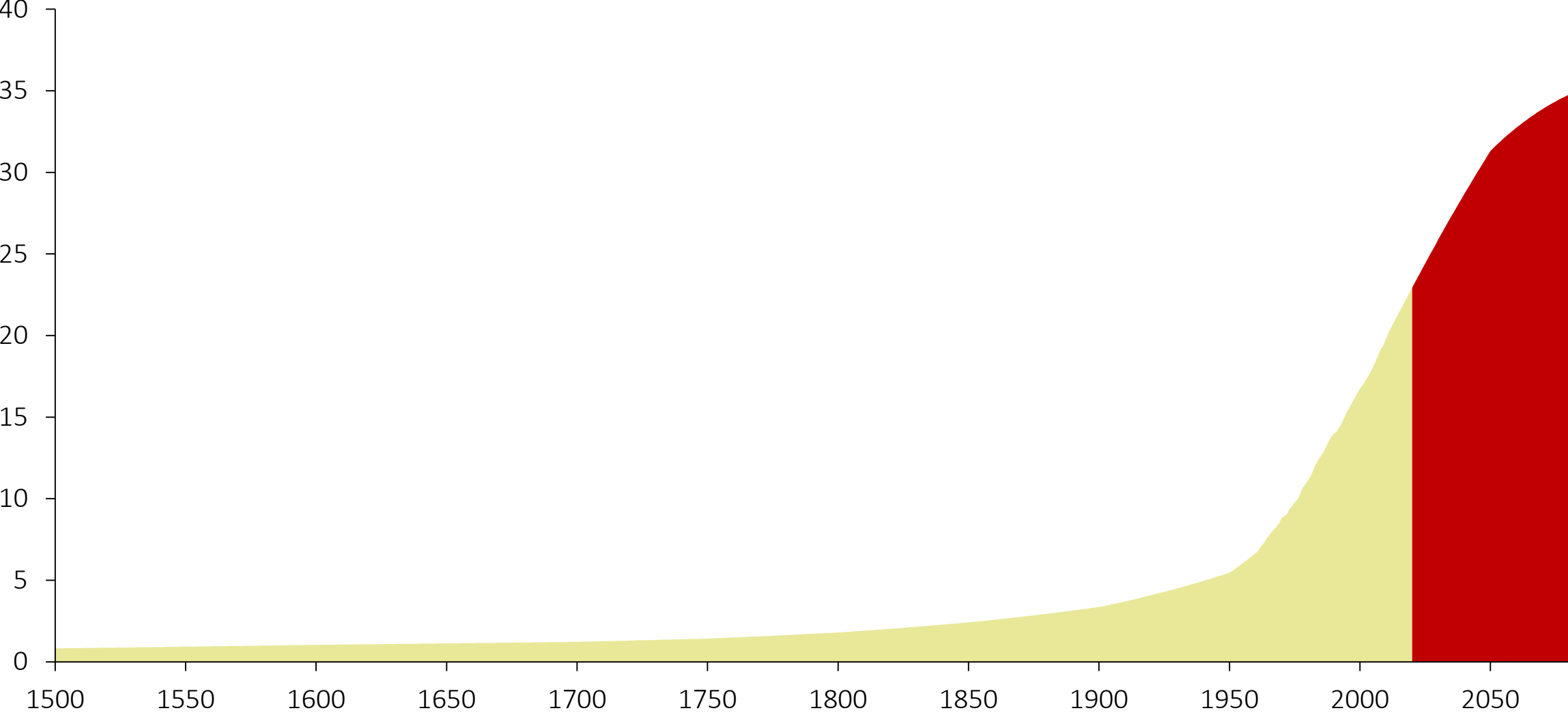
Source: NOAA (2018)

Scarcity-Weighted Water Use



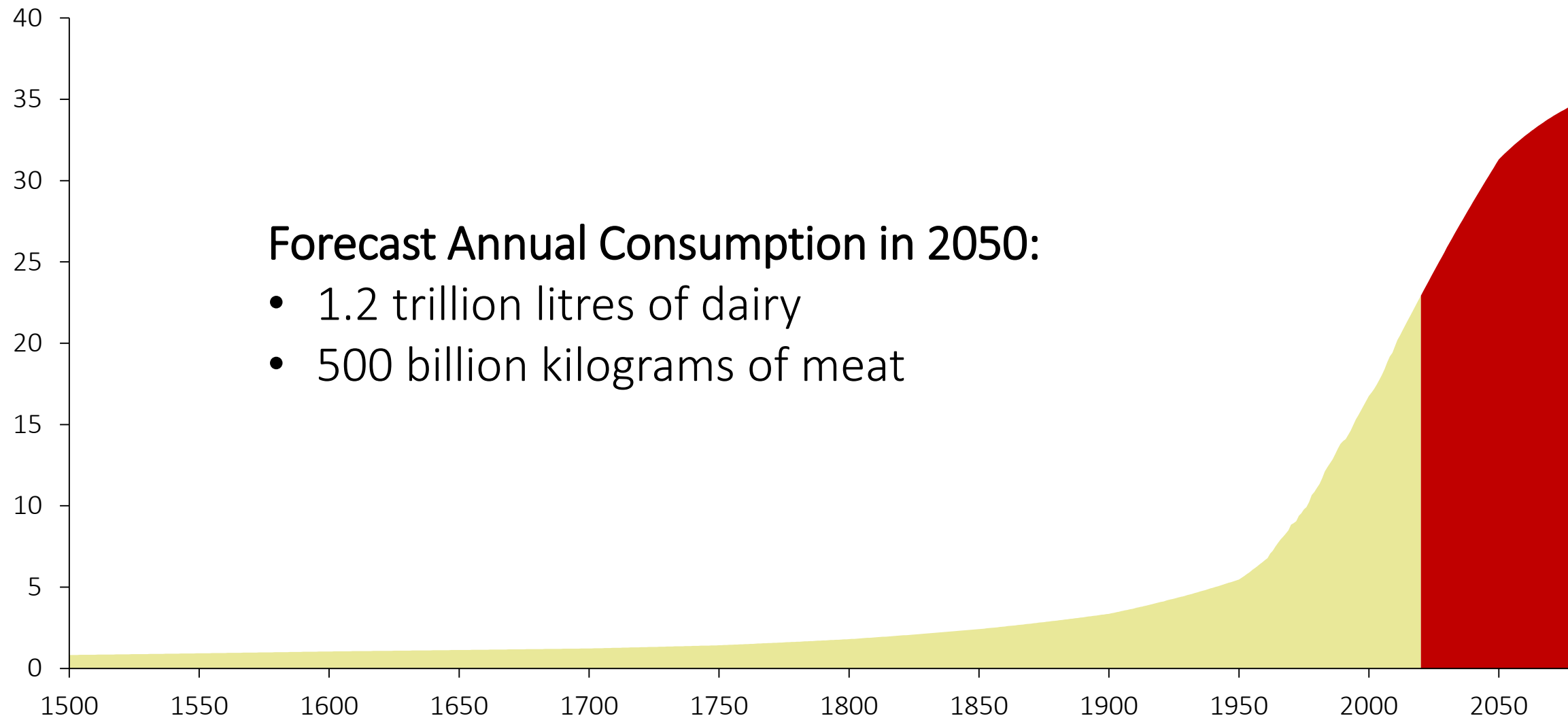
Source: Poore & Nemecek (2018)

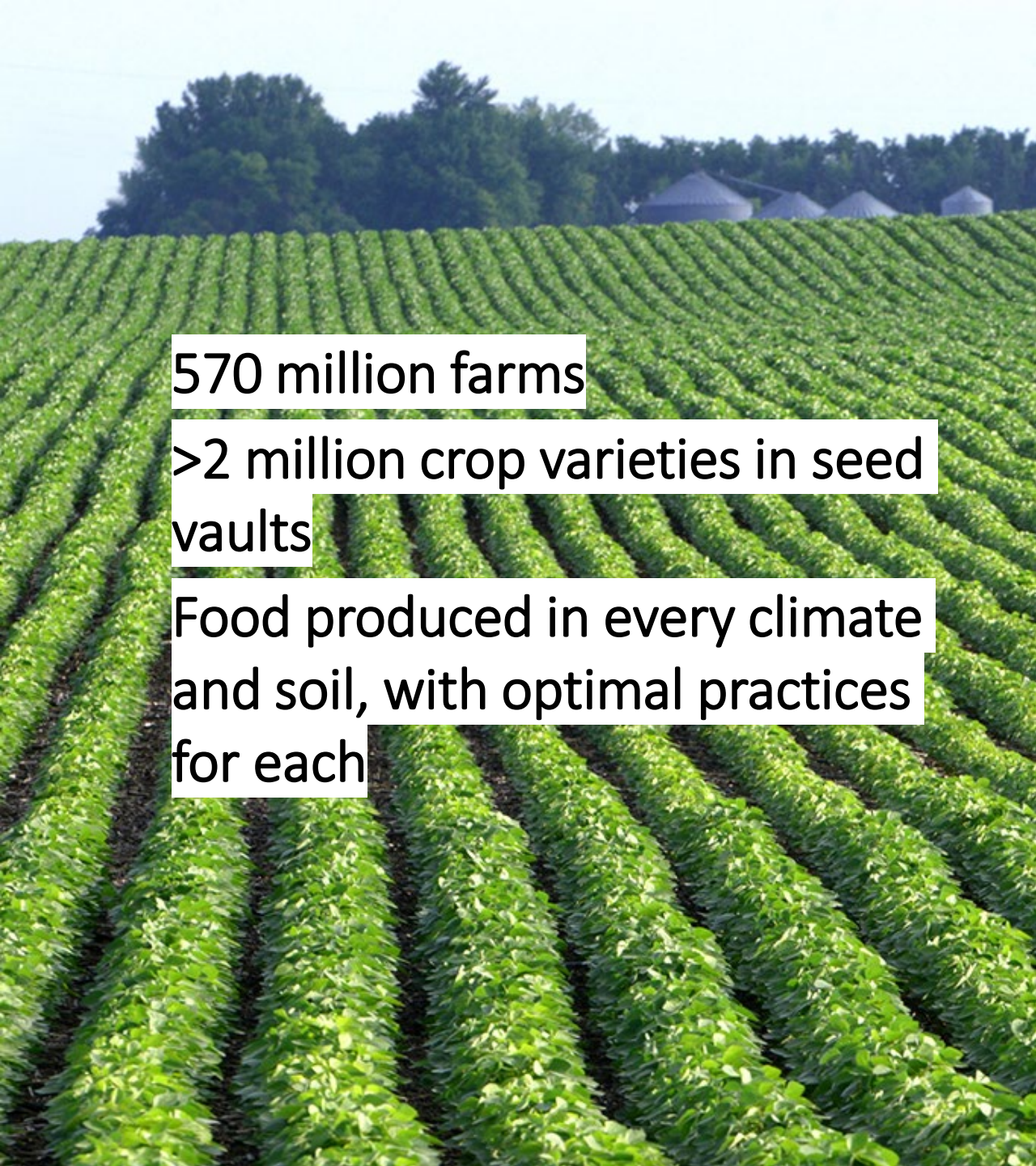
Food Consumption (trillion calories per day)



Source: Adapted from Smith (2015), using data from FAOSTAT and the UN

Food Consumption (trillion calories per day)





570 million farms

>2 million crop varieties in seed vaults

Food produced in every climate and soil, with optimal practices for each



430 brands

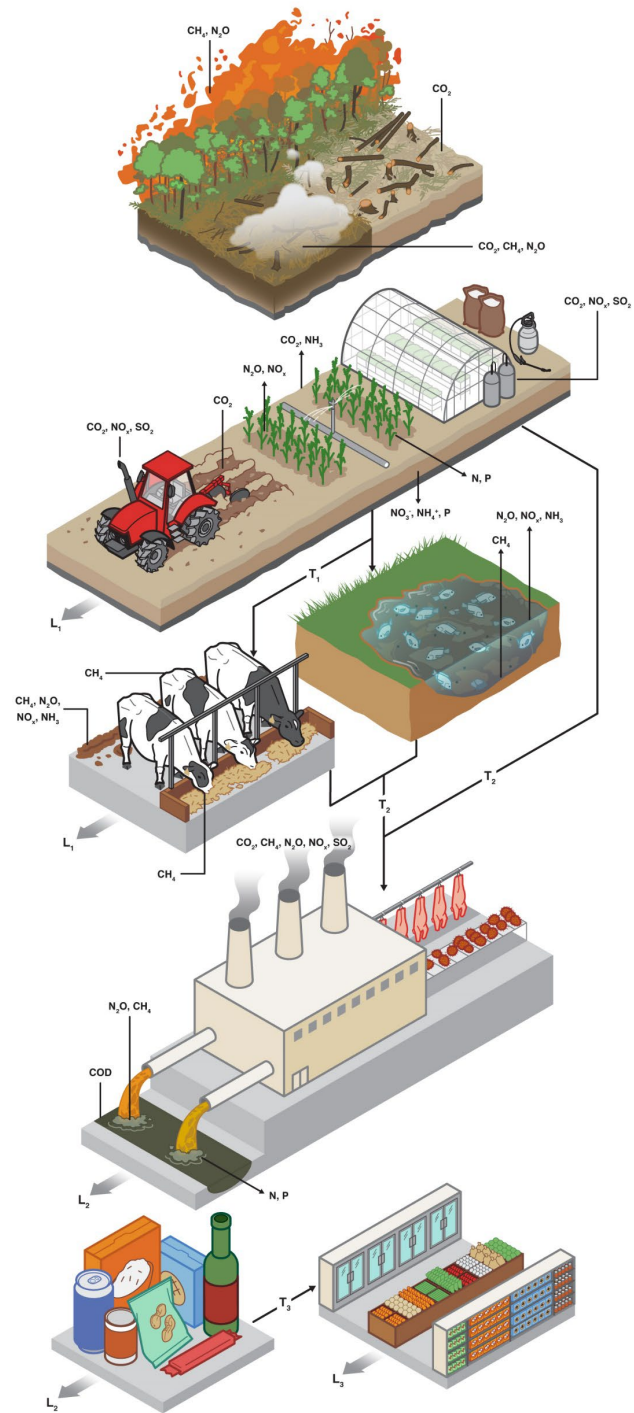
14 companies own 54 of the largest brands

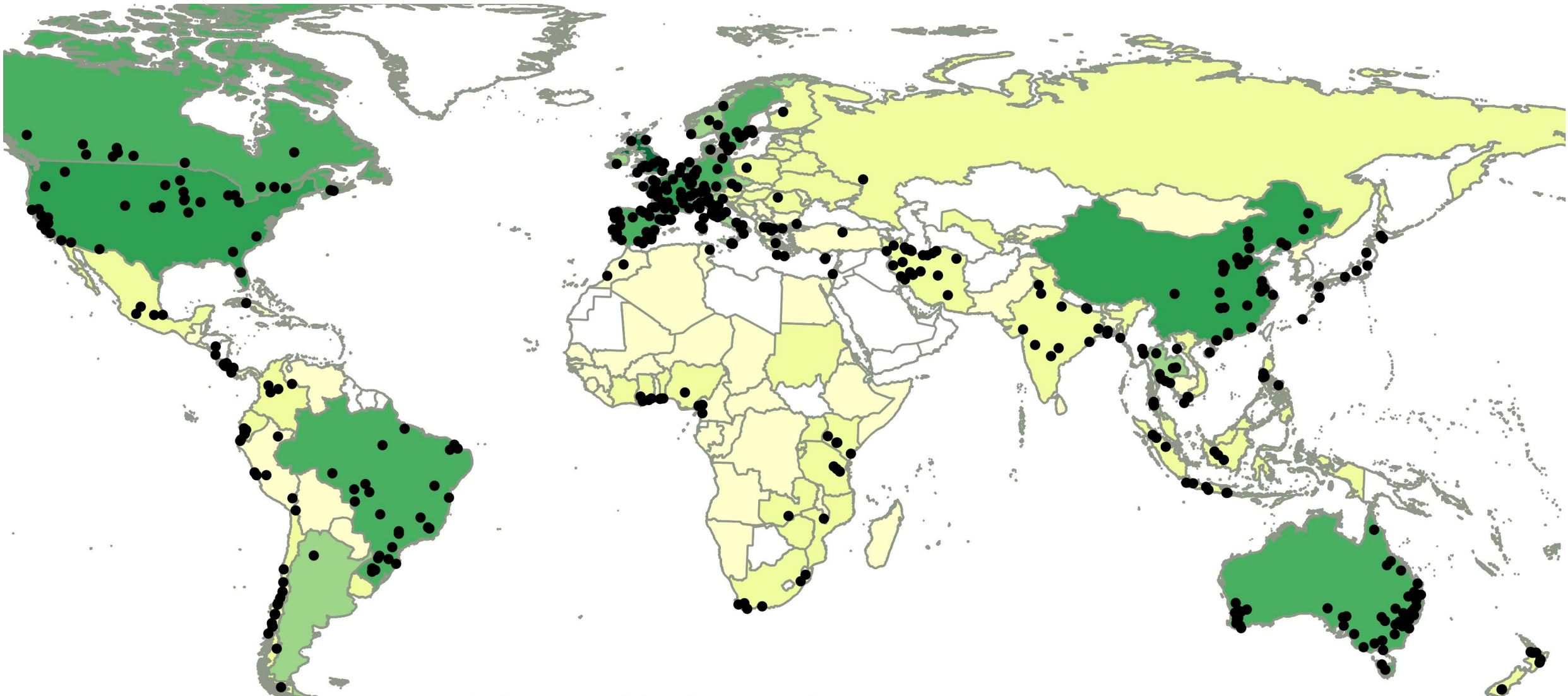


Summary

1. Agriculture sits at the heart of almost all environmental problems
2. Achieving sustainability will become harder given growing demand
3. Solutions must be effective over millions of diverse producers





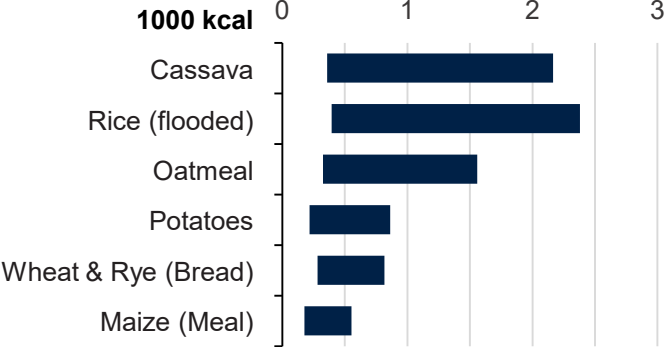


Sub-National Studies - Study Location: •

National Studies - Observations per Country:

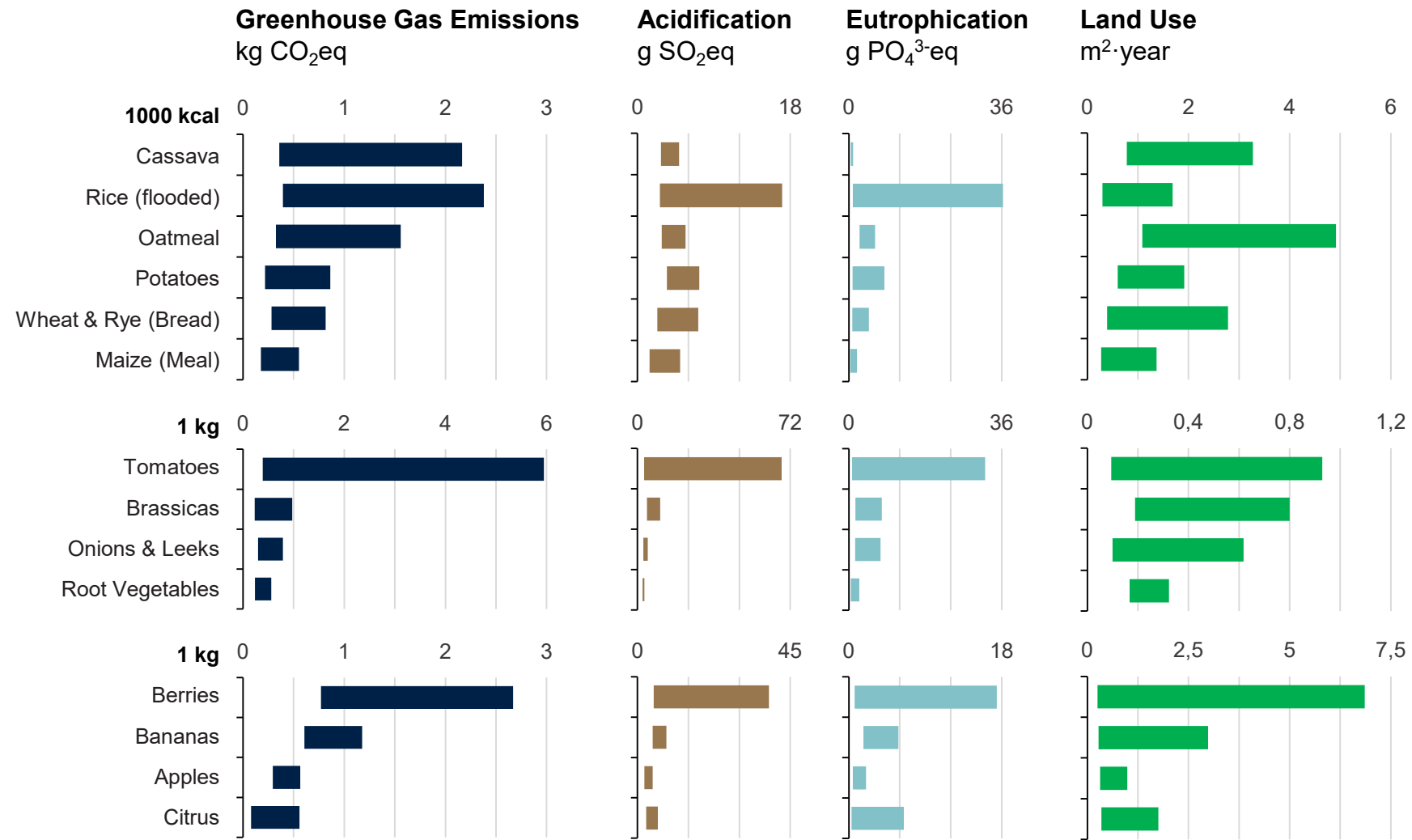


Greenhouse Gas Emissions kg CO₂eq

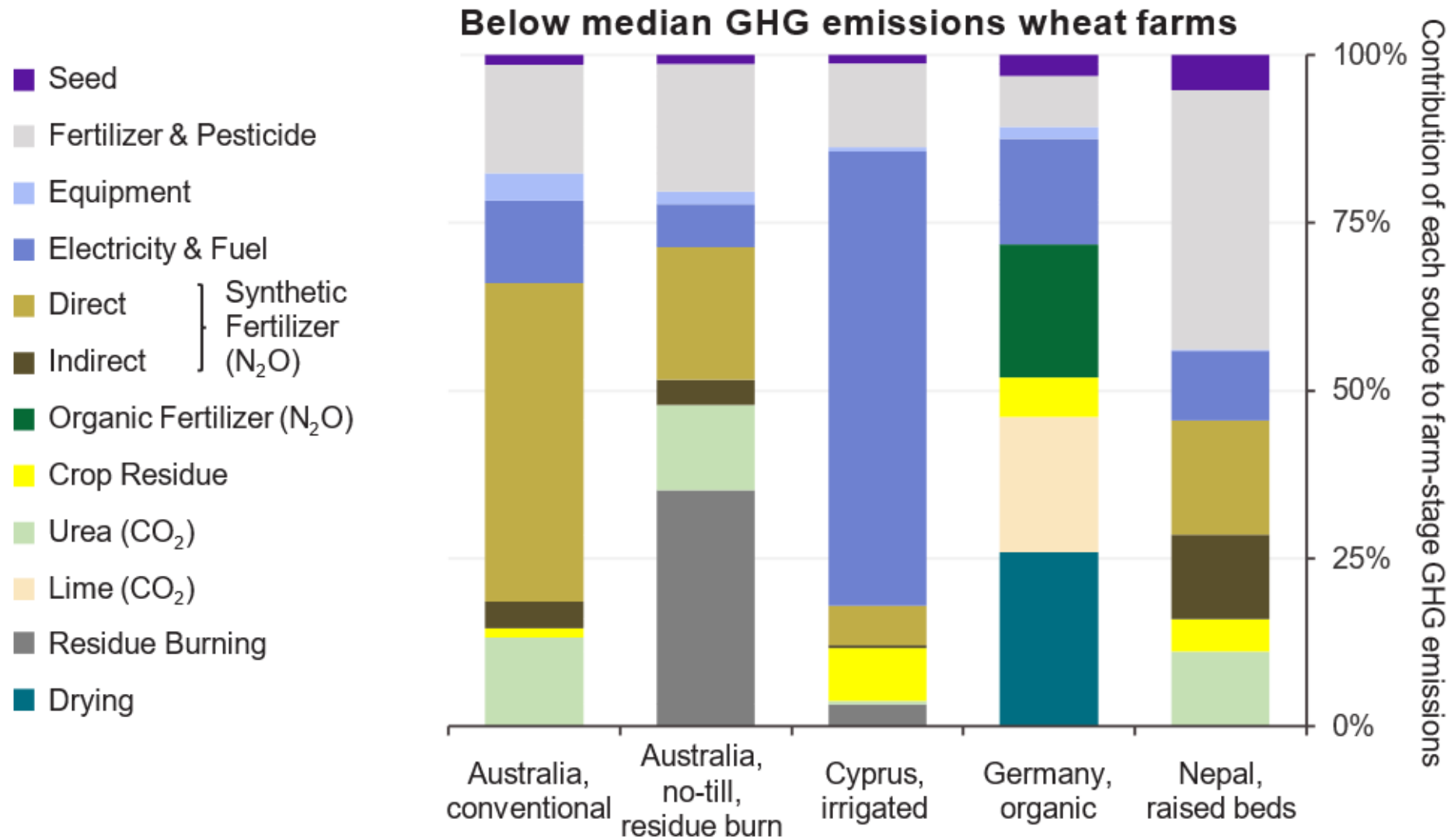


Source: Poore & Nemecek (2018)

- Large variability across all indicators, including in similar geographic regions
- Implies a targeted mitigation approach will have highest impact

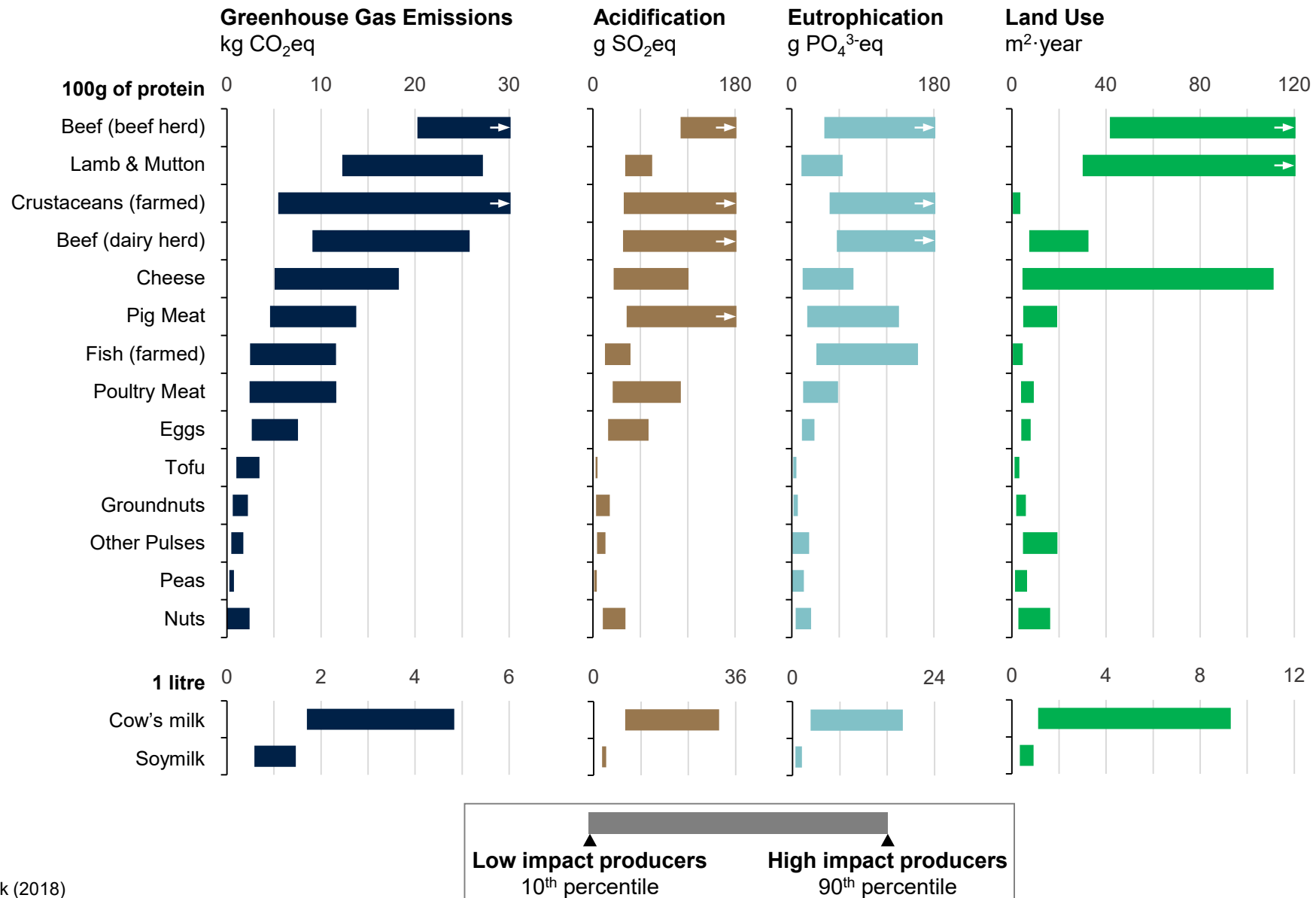


- There are different causes of environmental impact for different farmers
- We need to be flexible and let them deliver mitigation however works best for them



Source: Poore & Nemecek (2018)

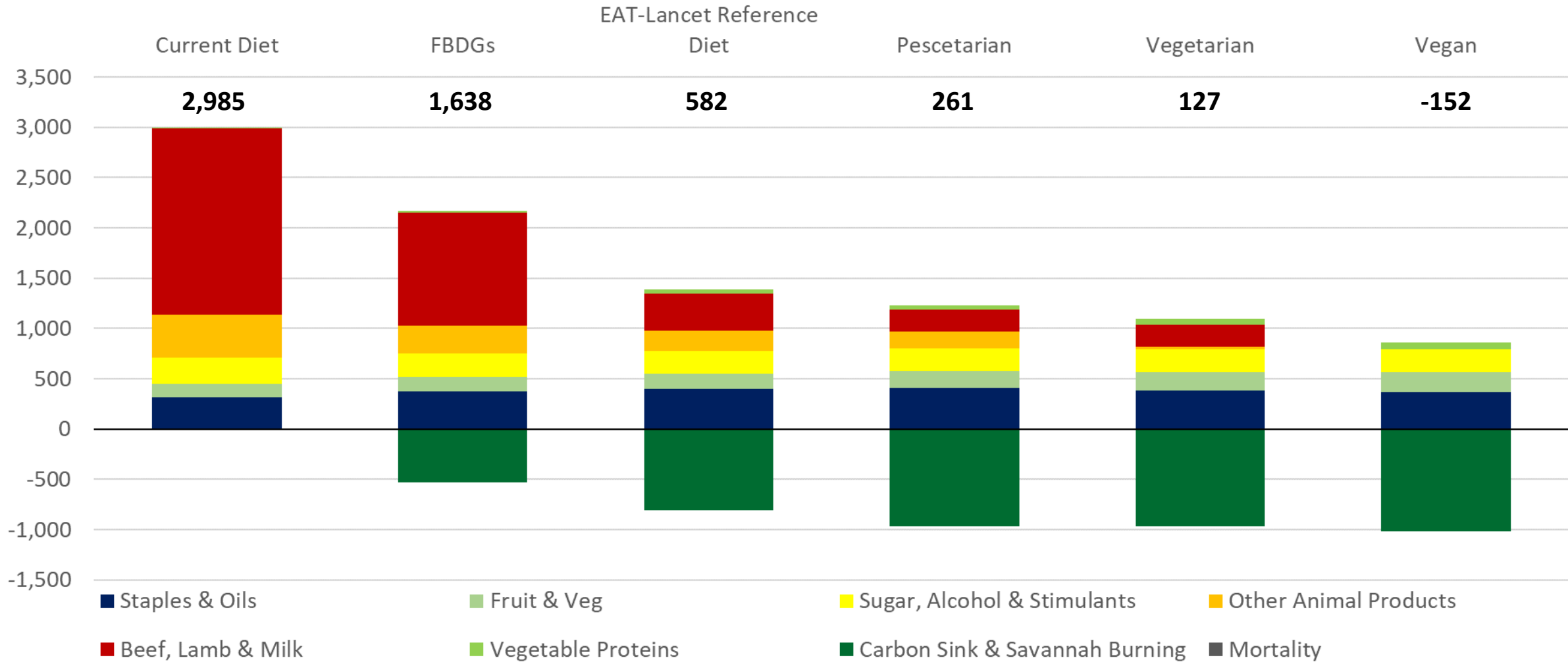
- Large variability across all indicators, including in similar geographic regions
- Implies a targeted mitigation approach will have highest impact



Source: Poore & Nemecek (2018)

Netherlands: GHG emissions related to food under different diets

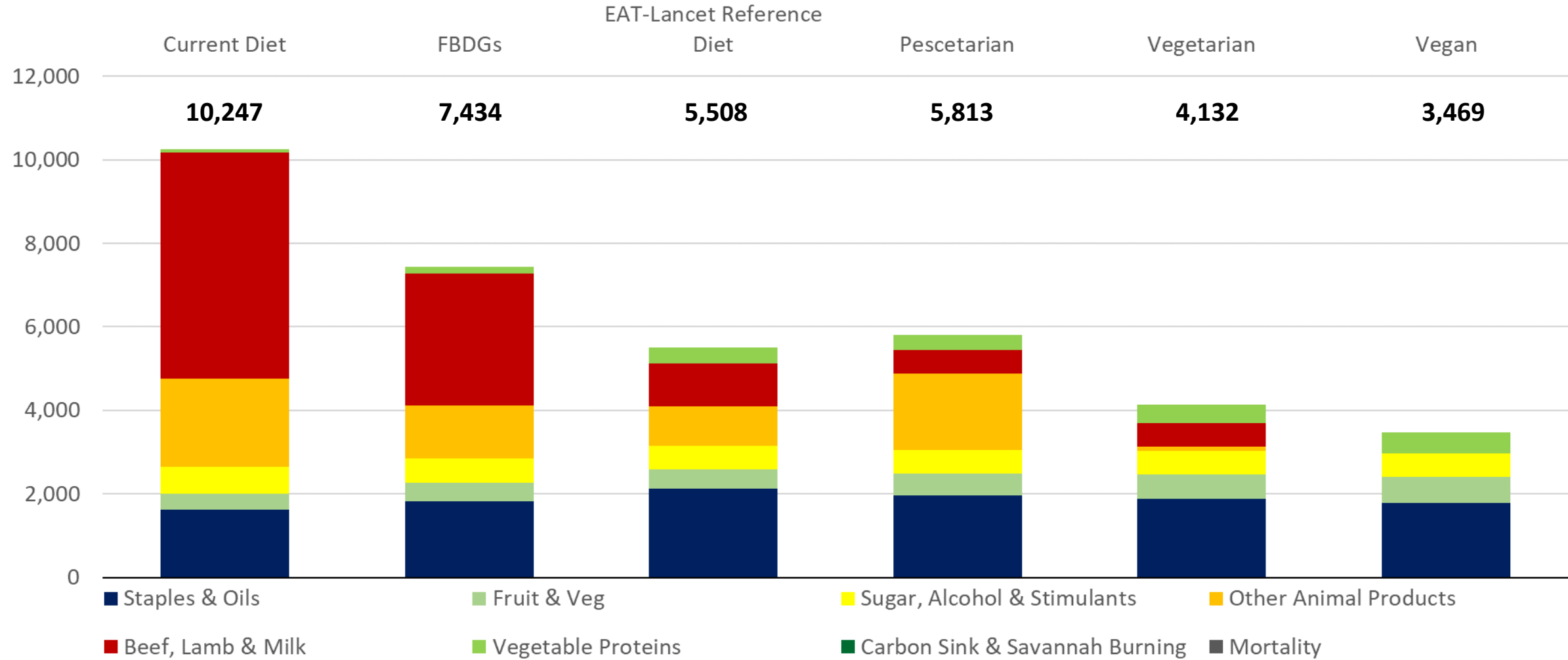
GHG emissions per capita (kg CO₂eq, IPCC 2013)



Source: Poore, Clark & Springmann (2020)

Netherlands: Eutrophying emissions related to food under different diets

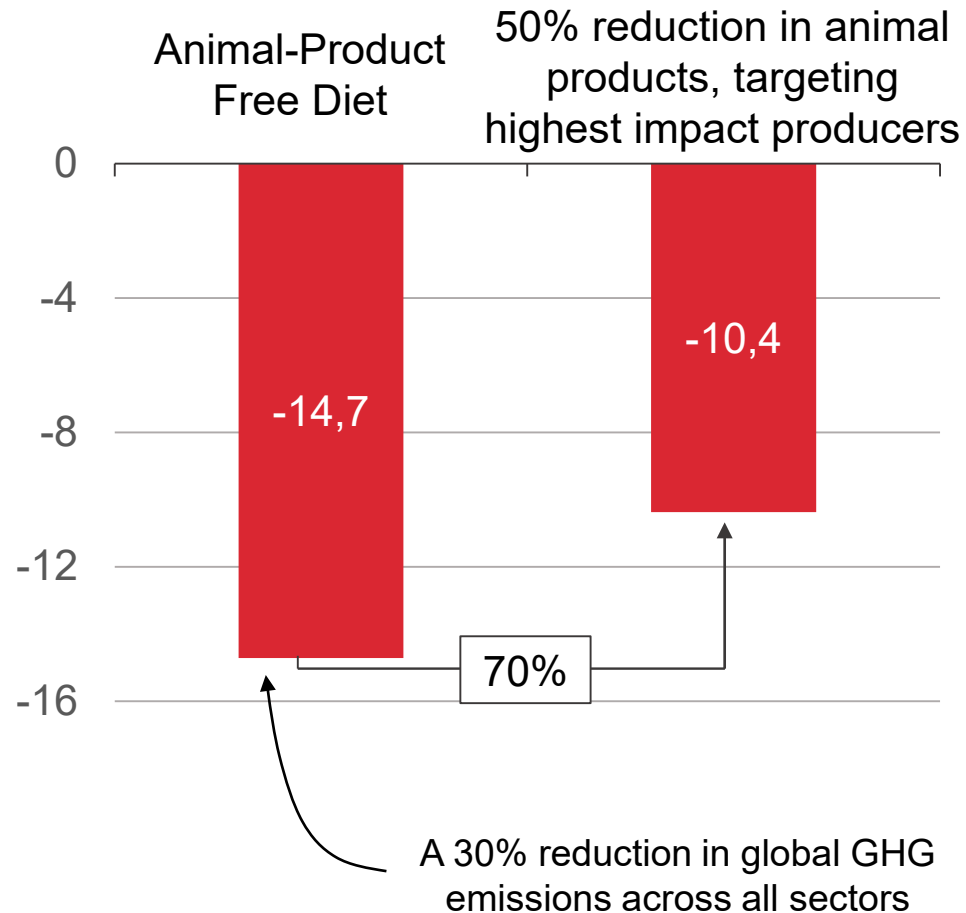
Eutrophying emissions per capita (g PO43-eq, CML2 baseline)



Source: Poore, Clark & Springmann (2020)

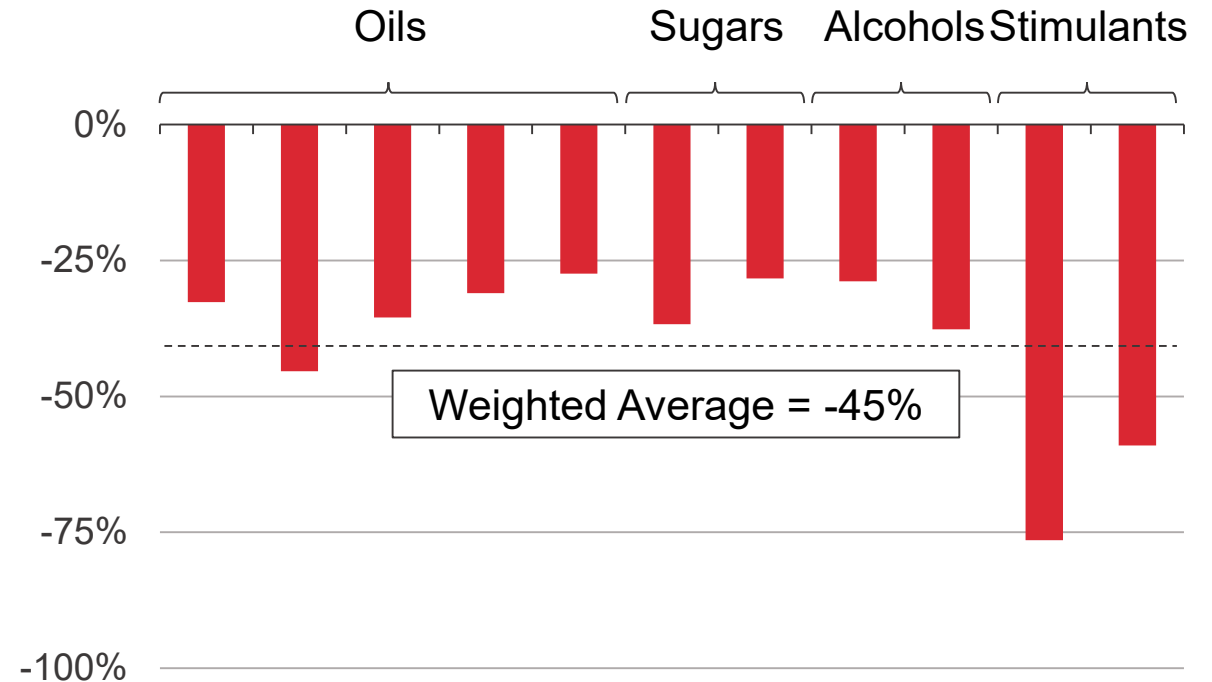
- Benefit of eating less of a high impact product increase by choosing the most sustainably produced
- Consumers can make such choice if value chain channels enable identity preservation

Greenhouse Gas Emissions (Gt CO₂eq)



Change in Greenhouse Gas Emissions

Consume 20% less, targeting the highest impact producers



HIGH Environmental Impact per serving

D

Water Scarcity
61L

Climate Change
51kgCO₂e



51g
Pesticide Toxicity

High (54)
Biodiversity Impact

LOW Environmental Impact per serving

A+

Water Scarcity
7L

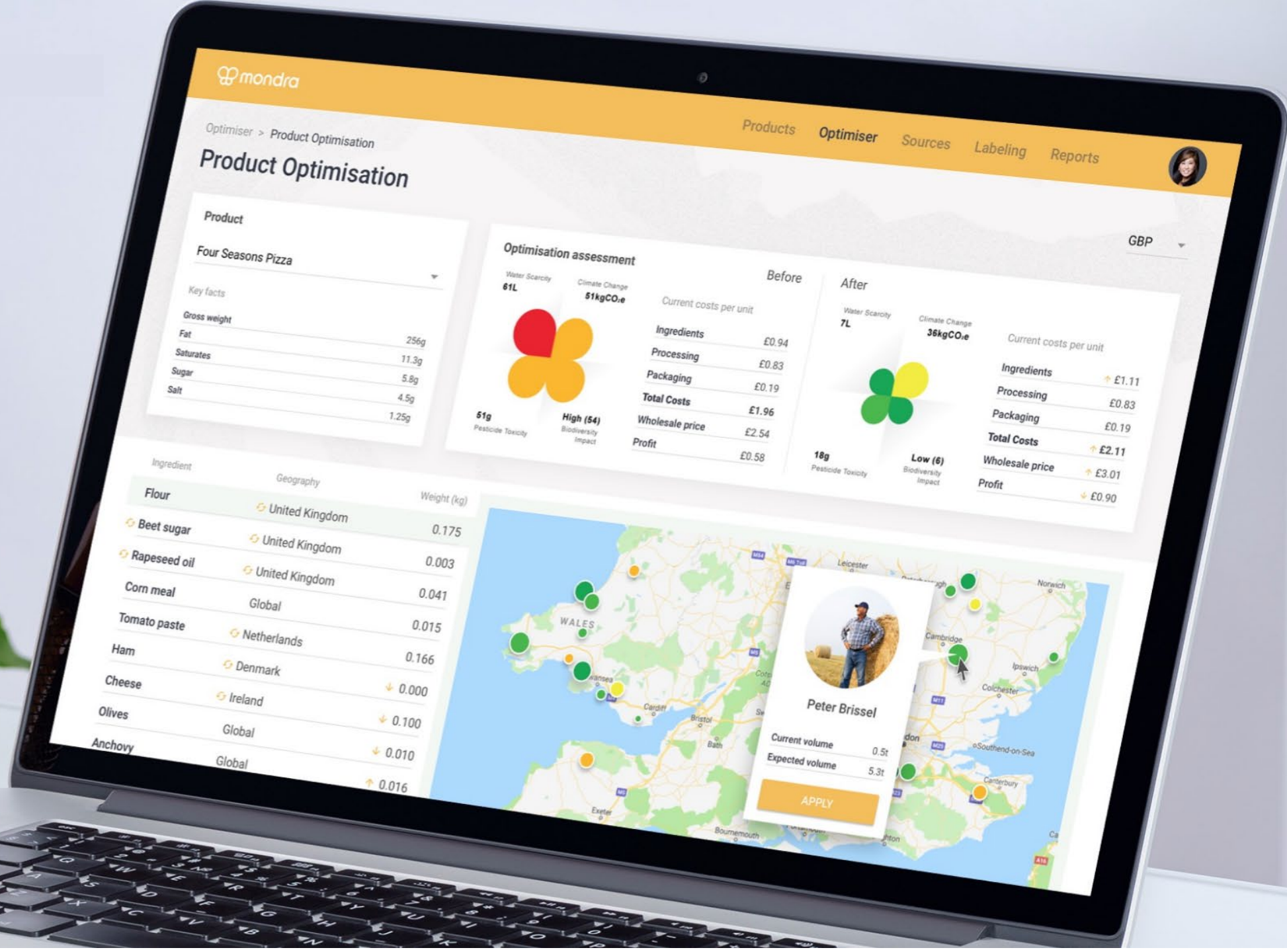
Climate Change
36kgCO₂e



18g
Pesticide Toxicity

Low (6)
Biodiversity Impact





Product Optimisation

GBP

Product

Four Seasons Pizza

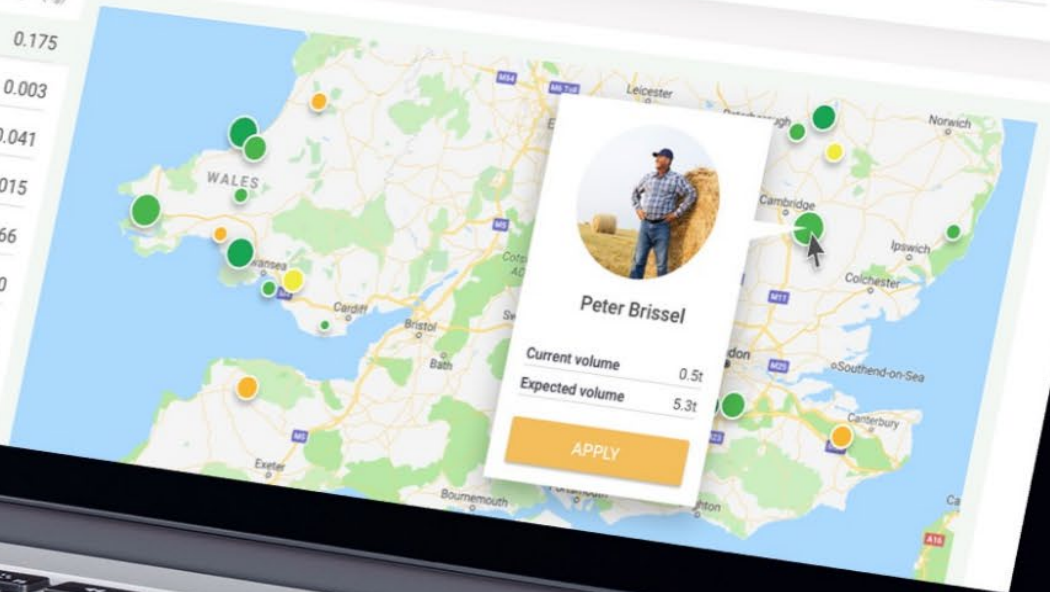
Key facts

Gross weight	256g
Fat	11.3g
Saturates	5.8g
Sugar	4.5g
Salt	1.25g

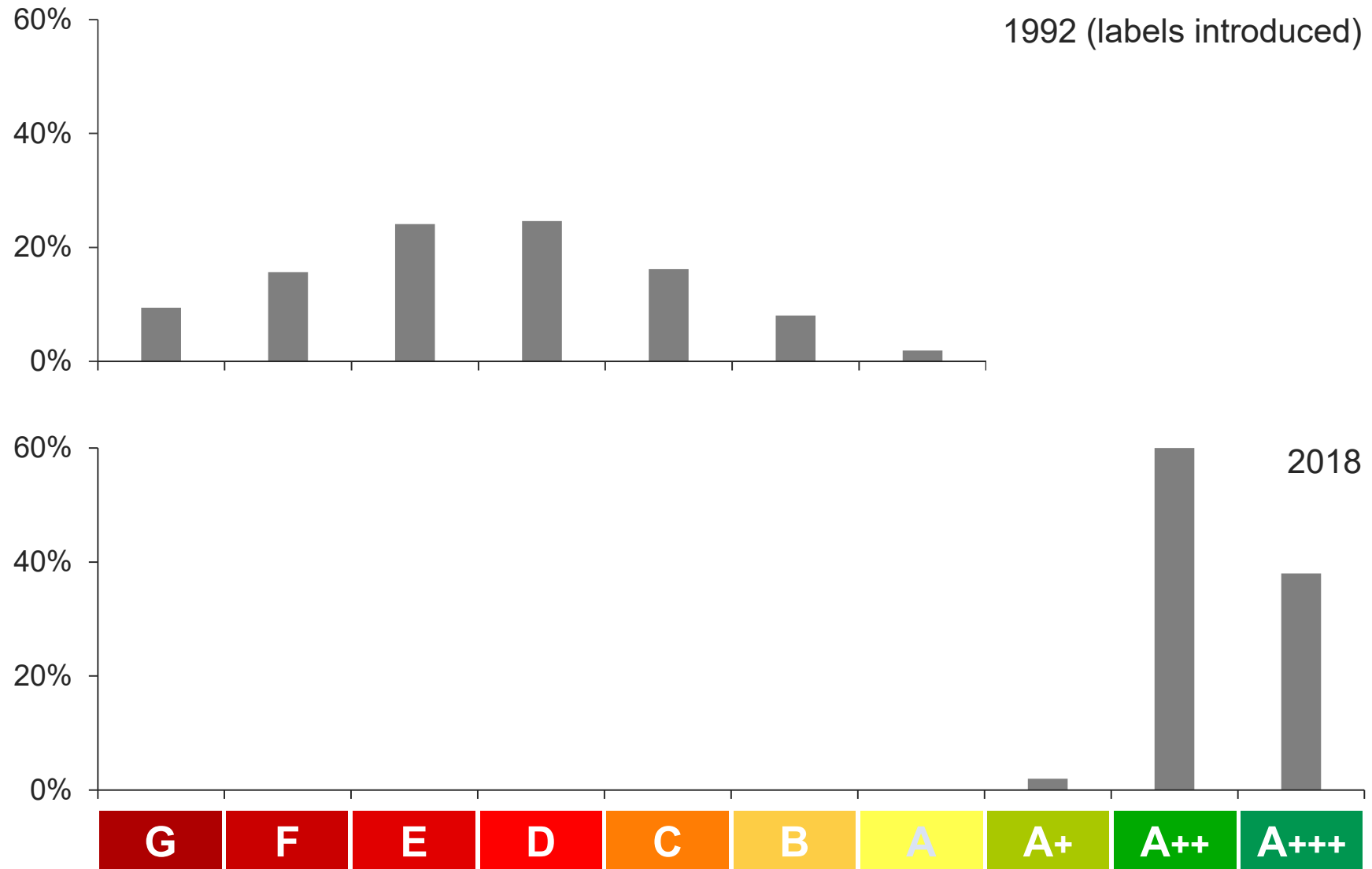
Optimisation assessment

	Before	After
Water Scarcity	61L	7L
Climate Change	51kgCO ₂ e	36kgCO ₂ e
Pesticide Toxicity	51g	18g
Biodiversity Impact	High (54)	Low (6)
Current costs per unit		
Ingredients	£0.94	£1.11
Processing	£0.83	£0.83
Packaging	£0.19	£0.19
Total Costs	£1.96	£2.11
Wholesale price	£2.54	£3.01
Profit	£0.58	£0.90

Ingredient	Geography	Weight (kg)
Flour	United Kingdom	0.175
Beet sugar	United Kingdom	0.003
Rapeseed oil	United Kingdom	0.041
Corn meal	Global	0.015
Tomato paste	Netherlands	0.166
Ham	Denmark	0.000
Cheese	Ireland	0.100
Olives	Global	0.010
Anchovy	Global	0.016



Household appliance market share by energy efficiency group





Summary

1. Very significant potential to reduce food's impacts
2. Mitigation requires a sophisticated approach, engaging full supply-chain
3. Mandatory labels are the most promising way to shift the entire system

